Communicable Disease Report

Hawai'i Department of Health
Communicable Disease Division

May/June 2001

Epidemiology of Brucellosis in Hawai`i

Introduction

Brucellosis is a zoonosis caused by four species of ***Brucella*** associated with different animals: ***B. abortus*** in cattle, ***B. melitensis*** in sheep and goats, ***B. suis*** in swine and ***B. canis*** in dogs. In Hawai`i, the latter two have been confirmed in people.

The disease in the affected animal species results in abortions and infertility in females, and sterility in males.

Human transmission occurs following contact with infected animals or their tissues, including blood and body fluids, aborted fetuses, placentas, and ingestion of raw milk and dairy products (unpasteurized cheese) from infected animals. The bacteria are highly contagious by aerosol, occurs in animals in their pens and stables, and in humans in laboratories and abbatoirs. The incubation period ranges from 5 to 60 days.

Brucellae can be weaponized and released as an aerosol in a building, a battlefield, or a metropolitan area. Therefore, bioterrorism must be considered when an outbreak of brucellosis is reported.

Case Review

Between 1991 and the first quarter of 2001, 12 cases of brucellosis were diagnosed in Hawai`i. All were culture-confirmed infections due to ***B. suis.***

One case was from O`ahu in 1993. The other cases were from the island of Hawai`i. Nine were from the Kona district, one from Pā hoa and one from Honoka`a. Two occurred in 1996, 3 in 1997, one each in 1998, 1999 and 2000, and 3 in the first quarter of 2001. Ages ranged from 27 to 74 years with a median of 44 years. Eleven were males and one was female. There were two outbreaks, one involving a man and his wife, both of whom handled feral pork.

In February and March 2001, three construction co-workers in Kona developed brucellosis with disease onsets within 32 days. Two were pig hunters. The third case, the father of one of the other cases, indicated no contact with feral swine or pork. This outbreak suggested possible airborne transmission. All cases had uneventful recoveries.

A case of ***B. canis*** infection was confirmed in a 65 year-old Kaua`i woman in 1984. She was diagnosed with brucellosis following a protracted illness including several previously negative blood cultures. The family maintained pig hunting dogs, but subsequent serologic test results on the dogs and family members were negative for brucellosis.

Transmission

Of the 9 cases occurring between 1996 and 2000, all had exposure to wild pigs. Most of the exposures were from hunt-

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Diagnosis and Management of Hepatitis C in Hawai`i

Introduction

Hepatitis C virus (HCV) is the most common cause of liver failure and liver transplants in the United States (U.S.). The national prevalence is estimated to be between 1.4% and 1.8%. Two-thirds of cases are asymptomatic. This prevalence applied to Hawai`i suggests that between 16,000 and 21,000 persons are HCV positive. Over 5000 cases have been identified to date. HCV-infected persons are frequently unaware of the risk factors or the need to be tested. HCV infection is insidious and initial diagnosis depends on a high index of suspicion. Treatment is prolonged with significant adverse effects, with less than a 50% success rate. Decisions to initiate or continue antiviral therapy can be a challenge to medical judgment. Recent studies suggest a significant percentage of treatment failure is due to a lack of patient compliance.

Hepatitis C has been a reportable disease in Hawai`i since October 1997. 652 physicians who have diagnosed HCV were surveyed by the Department of Health (DOH). 314 (48%) responded and part of this report is based on that survey.

Therapy

Several regimens are approved for hepatitis C in the United States: monotherapy with alpha interferon, consensus interferon, pegylated interferon, and combination therapy with alpha interferon or pegylated interferon and ribavirin. Alpha interferons are given subcutaneously three times weekly in 3 million units (MU) dose. Consensus interferon is given as a 9 µg dose. Pegylated interferon is given as a 1 µg per kilogram weekly dose.

Ribavirin is an oral antiviral agent given in a total daily dose of 1,000 mg for patients weighing <75 kg (165 lbs.) or 1,200 mg for those weighing ≥75 kg.

Treatment with interferon alone or combination therapy with interferon and ribavirin leads to rapid improvement in serum ALT levels in 50-75% of patients and the disappearance of detectable HCV RNA from serum in 30-50%. Combination therapy consistently yields higher rates of sustained response than monotherapy, but is more expensive and is associated with more side effects. Optimal duration of treatment depends on the HCV genotype and whether interferon monotherapy or combination therapy is used. A 48-week course is recommended for patients treated with interferon monotherapy, regardless of genotype. Optimal duration of treatment for patients treated with combination therapy also depends on viral genotype. Patients without genotype 1 have a recommended 24-week course of combination therapy and those with genotype 1 have a 48-week course recommendation. If HCV RNA remains undetectable for more than six months after cessation of therapy, the treatment response is considered to be "sustained." Sustained response rates vary considerably and at best reach 65%.

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Case Management

The HCV virus is not as easily transmitted as Hepatitis B. However exposure to blood of infected persons should be avoided. Families in which a member has HCV should have basic knowledge of precautions to avoid exposure to blood and to properly dispose of dressings. In the home casual contact such as sharing dishes, touching or kissing, poses no substantive risk. All HCV patients should be immunized against Hepatitis A and B, because those who experience another liver insult can develop fulminating disease.

Most physicians recommend some restriction of alcohol intake. Review of the literature does not establish a safe minimum dose of alcohol, so it is best to recommend total abstinence. Members of a local HCV support group indicate that the only safe recommendation is complete abstinence. Patients who have difficulty with alcohol abstinence should seek assistance from a 12-step program such as Alcoholics Anonymous.

Interpretation of Diagnostic Test Results

Patients who present with a positive EIA-3 with no risk factors and normal liver enzymes, should have the diagnosis confirmed with either an antibody (RIBA) or viral antigen detection (PCR) test. Yet, even with these tests, the number of false positive results is still significant. It has also been demonstrated that about 14% of patients with normal ALT's have progressive liver disease. In these patients, it is important to demonstrate whether the virus is present. If the PCR test is posi-

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The Health State
HAWAI'I STATE DEPARTMENT OF HEALTH

Editor:
David Sasaki, DVM, MPH

Published bimonthly by the Hawai'i Department of Health, Communicable Disease Division, 1250 Punchbowl Street, Honolulu, Hawai'i 96813
Postage paid at Honolulu, Hawai'i

Beware of Animal Bites in Foreign Countries!

A May 10, 2001 Promed (International Society of Infectious Diseases) electronic mail posting described a case of rabies in a 55 year-old male United Kingdom (UK) resident exposed while visiting the Philippines. He was a former resident of the Philippines. While attending a wedding, he was bitten by a dog on the hand, following provocation. Although he cleaned the wound, he did not seek medical attention. He sought medical care after his illness began and was admitted to a UK hospital on April 30 in isolation. The biting dog died prior to onset of the patient's symptoms. Ante-mortem diagnosis was made from saliva and two skin biopsies using Polymerase Chain Reaction testing. The isolate was subsequently identified as classical rabies virus.

The Philippines have the third highest worldwide incidence of human rabies, with 400-500 reported cases annually. About 98% of cases are from dog bites, with 2% from cat bites. They estimate 10% of dog bites are from rabid animals. The Philippines have embarked on a rabies eradication program through dog vaccination and leash laws.

Evaluating Foreign Animal Bite Incidents in Hawai`i

Rabies is a fatal disease; there is no effective therapy once symptoms begin. The Department of Health (DOH) frequently receives calls from physicians regarding possible rabies exposures from patients bitten in foreign countries. People bitten by dogs in the Philippines are the most commonly requested consultations.

1. Geographic Location.

Most of the world is rabies-endemic. Hawai`i is rabies-free, as is most of Oceania. The following Pacific rim countries are also recognized to be rabies-free: Japan, Taiwan, Australia and New Zealand. Dogs are the primary rabies reservoirs in southeast Asia.

2. Establishing the Need for Post-Exposure Prophylaxis (PEP).

a. Health status of the dog. If a person is bitten by a dog in a rabies-endemic area, and subsequently travels to Hawai`i, awareness of the status of the biting dog determines the need for PEP. If the dog is owned and the patient has contact with the owner, the health of the dog is monitored for 10 days following the bite incident. If the dog is normal after that period, no PEPis needed. If the dog sickens and dies, disappears, or cannot be observed, PEP is begun immediately.

b. Rabies Postexposure Prophylaxis - Foreign Protocols. If a person is started on PEP in the country and travels to Hawai`i to continue the series, evaluation of what products the person received and the interval administered is necessary. There are many rabies prophylactic products and PEP protocols used internationally. However, the United States Advisory Committee on Immunization Practices (ACIP) acknowledges use of only human rabies immune globulin (HRIG) and three rabies vaccines. It recommends only one PEP protocol. When there are unanswered questions regarding the products and protocol used, it is appropriate to begin the series again with ACIP-approved products and protocol.

c. Serologic Testing. If one week or more has elapsed since beginning prophylaxis, a serum sample should be drawn and sent to a laboratory for Rapid Fluorescent Focus Inhibition testing (RFFIT). Most commercial laboratories in the U.S. do not run the RFFIT. There are at least four laboratories that offer the RFFIT, the largest being Kansas State University. Names and phone numbers of those laboratories are available on request. If an antibody titer (≥0.5 IU/ml) is present, PEP may be continued to completion per the ACIP recommendations. If no titer is present, the patient should be re-started on PEP following the ACIP recommendations.

3. Recommended Postexposure Prophylaxis in the U.S.

Following vigorous wound cleansing, the ACIP recommends 20 IU/kg (10 ml. covers a 165 lb. adult) of HRIG be administered around the wound site. The calculated dosage that cannot be given around the wound site should be administered in the gluteal muscles. Five 1.0 ml doses of human diploid cell vaccine (Aventis), rabies adsorbed vaccine (Bioport) or purified chick embryo cell vaccine (Chiron) should be administered in the deltoid on days 0, 3, 7, 14 and 28, with day 0 being the day PEP is begun.

4. Availability of PEP products in Hawai`i.

The DOH does not sponsor or stock rabies prophylactic products. However, there is a military and a civilian source of vaccine and globulin in Honolulu. The DOH will assist physicians initiating rabies PEP by borrowing HRIG and two doses of vaccine to begin the series. Companies that market the vaccines will air freight the products on receipt of a telephone order.

For more information, please call the DOH in Honolulu at (808) 586-8351.

REFERENCE.

1. ProMED-mail. RABIES, HUMAN - UK EX PHILIPPINES. May 10, 2001, May 15, 2001, May 19, 2001.

Submitted by David M. Sasaki, D.V.M., M.P.H., Veterinary Medical Officer, Epidemiology Branch.

Aventis Pasteur Drops Rabies Intradermal Vaccine

In March 2001, Aventis Pasteur Inc., which has produced and marketed the human diploid cell vaccine (HDCV) for rabies prevention, announced it was discontinuing its intradermal vaccine formulation-IMOVAX®Rabies I.D. Vaccine. The 0.1 ml intradermal vaccine had been FDA-approved for preexposure rabies prophylaxis as a less expensive alternative to the 1.0 ml intramuscular vaccine, and was included in the Advisory Committee on Immunization Practices'(ACIP) recommendations for rabies preexposure prophylaxis. Aventis Pasteur is the only vaccine manufacturer that had an FDA-approved intradermal rabies vaccine. They will continue to produce and market their 1.0 ml intramuscular HDCV vaccine.

There are two other manufacturers of FDA-approved human rabies vaccines, both of which market 1.0 ml vaccines for intramuscular administration. Bioport Corporation produces an adsorbed vaccine grown in rhesus diploid cells. Chiron Corporation produces a purified chick embryo cell vaccine. All rabies vaccines licensed for use in the United States are inactivated.

People at high risk of rabies exposure who undergo preexposure prophylaxis, receive three doses of 1.0 ml vaccine on days 0, 7 and 21 or 28. If such an individual is subsequently exposed to a rabid animal, the person receives two booster doses of vaccine on days 0 and 3. No Human Rabies Immune Globulin (HRIG) is administered.

People who have been exposed to a rabid animal receive postexposure prophylaxis, which includes vigorous wound cleansing and treatment, 1 dose of HRIG at 20 IU/kg on presentation and 5 doses of 1.0 ml rabies vaccine on days 0, 3, 7, 14 and 28.

For further information, please contact the Department of Health in Honolulu at (808) 586-8351.

Submitted by David M. Sasaki, D.V.M., M.P.H., Veterinary Medical Officer, Epidemiology Branch.

Brucellosis in Hawai'i

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ing and dressing feral swine carcasses, although others had contact through rearing of feral swine at home. One person's only exposure was handling pork from feral swine brought home by her husband.

Distribution

Through the Hawai`i Department of Agriculture's swine brucellosis surveillance program, pig hunters providing serum samples from feral swine and case reviews, feral swine in the following areas in the state are known to harbor brucellosis.

- Hawai`i, West: The Kona coast from Pu`uanahulu in North Kona through Yee Hop Ranch in South Kona. The large area is demarcated by a large lava flow north of Pu`uanahulu and by the 1950 Mauna Loa lava flows in south Kona.
- Hawai`i, East: Āhualoa and Pa`auilo.
- Maui: Kahakuloa.
- O`ahu: The following valleys and adjacent mountains: Kahana valley, Fort Shafter, Moanalua, Hālawa, Kawailoa and Wai`anae.
- Kaua`i, Moloka`i: Brucellosis has not been diagnosed in feral swine from either island.
- Lāna`i: Feral swine are not present on this island.

Diagnosis

All cases described above were diagnosed by blood culture. Species identification was delayed, as the cultures were sent to the Centers for Disease Control and prevention for identification.

Serologic tests are available for diagnosis. Agglutination and indirect fluorescent antibody (IFA) tests are available through commercial laboratories. A serologically confirmed case would show a four-fold or greater rise in antibody titer (IgG) between acute and convalescent phase samples. IFA IgG tests may be helpful in diagnosis of chronic infections, where titers are low.

B. abortus antigen cross reacts with *B. melitensis* and *B. suis.* It does not cross react with *B. canis* antigen. As a result, laboratories offer panels including both *B. abortus* and *B. canis antigens.*

Prevention

Because brucellosis is transmitted by exposure to infected animal tissues and fluids,

- Pig hunters should wear protective clothing, including gloves and long sleeved shirts when dressing carcasses.
- Entrails from the animals should be buried.
- Hunters with skin wounds should not handle carcasses.
- People preparing feral pork for consumption should wear protective gloves, and should not handle the pork if they have skin wounds that may be contaminated by fluids.
- Because brucellosis may also be transmitted via aerosols, people should not rear feral swine from affected areas.
- Feral swine should not be raised with domestic swine. The state's domestic herds are free of brucellosis. Comingling feral swine with domestic swine may result in transmission to domestic swine. Domestic swine herds that test positive for brucellosis are quarantined by the Department of Agriculture.

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Submitted by David M. Sasaki, D.V.M., M.P.H., Veterinary Medical Officer, Epidemiology Branch, Philip P. Bruno, D.O., F.A.C.P., Chief, Communicable Disease Division, and Jason Moniz, D.V.M., Chief, Livestock Disease Control Branch, Animal Industry Division, Hawai`i Department of Agriculture.

Emergency Vaccine Storage Plans

The hurricane season is quickly approaching. The Hawai`i Immunization Program's Vaccine Supply and Distribution Unit requests that physicians/clinics add the formulation of an **Emergency Vaccine Storage Plan** to your list of things to do in preparation for the season. Vaccines can be costly, ranging anywhere from $6.00 per dose (Hib) to $46.00 per dose (Prevnar). Some vaccines, particularly those containing Tetanus, may be difficult to replace because of manufacturing shortfalls. In addition to a well-formulated plan, limiting vaccine inventory to a maximum 3-month supply at any given time can significantly reduce vaccine loss.

A simple and easy to follow Emergency Vaccine Storage Plan that contains contact names and numbers, person(s) responsible for specific tasks, and important time and temperature checks, is shown below. Time and temperature information is required by manufacturers when checking on the viability of vaccines following restoration of power.

The first sample plan is applicable for clinics/practices that require vaccines to be transported to another site.

If your clinic/practice has access to an emergency generator, the following sample plan may be more applicable.

Once your plan is complete, it should be circulated to and read by all staff. A copy of the plan should then be posted on or near the refrigerator/freezer containing vaccines, and used as a reference during an actual emergency situation. The key to reducing vaccine waste in power outages is having an Emergency Vaccine Storage Plan, knowing your plan and your responsibilities in the plan, and being able to execute the plan in an emergency situation.

For further assistance in formulating a plan or questions regarding vaccine storage, please contact the Vaccine Supply and Distribution Unit of the Hawai`i Immunization Program at 586-8329 in Honolulu or toll free at 1-800-933-4832.

Submitted by Loriann Kanno, Pharm D., Pharmacist, Vaccine Supply and Distrib - ution Unit, Hawai`i Immunization Pro - gram, Epidemiology Branch.

Table 1

EMERGENCY VACCINE STORAGE PLAN FOR
PROVIDER NAME OR CLINIC
(SAMPLE - TRANSPORT TO ANOTHER LOCATION)**

1. In the event of a power outage that affects the refrigerator/freezer containing the vaccines, (name of staff person) will pack all vaccines into a cooler with ice packs. Freezer contents are to be loaded first and packed solidly with ice. Refrigerator contents to follow, packed solidly with ice.

2. The cooler is located in (location). The ice packs are frozen and located in the (location) freezer.

3. The following will be noted by (name of staff person):
- Estimated time of power outage;
- Temperature of refrigerator/freezer at the time vaccines are removed for transport; and
- The time that the vaccines are removed from refrigerator/freezer for transport.

4. The above information will be placed on (name of staff person)'s desk for reference when calling vaccine manufacturers to check the viability of vaccines.

5. (Name of staff person) will take the vaccines packed in the cooler with ice packs to (emergency storage location).

6. Call (name of staff person) and notify of vaccine transfer.

7. Vaccines are to be kept in refrigerator/freezer at (emergency storage location) until power has been restored in the office/clinic, and the refrigerator/freezer temperature in the office/clinic is within an acceptable range for the vaccines.

8. At this time (name of staff person) will retrieve the vaccines from (emergency storage location), pack in a cooler with ice packs, and return the vaccines to the office/clinic.

9. **It is imperative that the cold chain be maintained throughout the transport process.**

**Prior to implementation of this plan, the provider/clinic must establish an emergency storage location that has a refrigerator/freezer connected to an emergency generator. The location must also be able and willing to store the provider's/clinic's vaccines should an emergency situation arise.

Revised 11/00

Table 2

EMERGENCY VACCINE STORAGE PLAN FOR
PROVIDER NAME OR CLINIC
(SAMPLE - EMERGENCYGENERATOR WITHIN FACILITY)

1. In the event of a power outage that affects the refrigerator/freezer containing the vaccines, (name of staff person) will connect the emergency generator to refrigerator/freezer.

2. The generator is located in (location). Extension cords are located in (location).

3. The following will be noted by (name of staff person):

- Estimated time of power outage;
- Temperature of refrigerator/freezer prior to connecting the generator;
- The time the generator is connected and functioning; and
- The time at which the refrigerator/freezer temperature is restored to within the acceptable range.

4. The above information will be placed on (name of staff person)'s desk for reference when calling the vaccine manufacturers to check viability of the vaccines.

5. Call (name of individual) to notify of above.

6. The generator may be disconnected after electrical power is restored.

Revised 11/00

Pneumococcal Disease: A Killer

To decrease the thousands of hospitalizations and deaths annually among the elderly and other vulnerable groups, a state wide task force is implementing a public education campaign to prevent pneumococcal pneumonia disease. The Pneumonia Working Team is comprised of public and private agencies interested in increasing pneumococcal pneumonia vaccination rates throughout the state.

Goals for 2001 are:

- Public education focusing on prevention of pneumococcal disease – Television and radio announcements. Posters and flyers distributed to and displayed at local businesses to raise public awareness of pneumococcal disease.

- Immunization provider awareness – Communication with physicians and their staff encouraging pneumococcal disease prevention through vaccination.

- Systems-related process improvements – Surveying long term care facilities and encouraging the use of standing orders for pneumococcal vaccine for their patients.

The focus on pneumococcal disease prevention is because of the enormous cost to society in excess hospitalizations and death.

Pneumococcal disease, caused by *Strep - tococcus pneumoniae*, causes widespread illness and death worldwide each year. In the U.S., 40,000 or more persons die annually as a result of this disease, more than all other vaccine preventable diseases combined.

In additional, invasive pneumococcal disease causes an estimated 150,000 to 570,000 cases of pneumonia, 16,000 to 55,000 cases of bacteremia, and 3,000 to 6,000 cases of meningitis in the U.S. each year.

Persons at *increased risk* for invasive pneumococcal disease include:

- adults 65 years of age and older,
- children less than 2 years of age,
- patients with certain underlying medical conditions, and
- persons with immunosuppressive conditions.

Pneumococcal Pneumonia

Pneumococcal pneumonia is the most common clinical presentation of invasive pneumococcal disease in adults. The incubation period of pneumococcal pneumonia is short, about one to three days. Symptoms generally include an abrupt onset of fever and shaking chills or rigors, along with pleuritic chest pain, productive cough, dyspnea, tachypnea, hypoxia, tachycardia, malaise, and weakness. The chest x-ray shows evidence of a pulmonary infiltrate representing air space consolidation within the lung(s).

Transmission

The reservoir for pneumococci is presumably the nasopharynx of asymptomatic human carriers. There is no animal or insect vector.

Transmission occurs as the result of direct person-to-person contact via droplets, and by "autoinoculation" in persons carrying the bacteria in their upper respiratory tract. Pneumococcal disease is more common during the winter and early spring when respiratory diseases are more prevalent. Spread of the organism within a family or household is influenced by crowding, and the presence of upper respiratory infections or pneumococcal disease such as pneumonia or otitis media.

Diagnosis

The diagnosis of invasive pneumococcal disease is confirmed by culturing *S. pneumoniae* from the anatomical site of infection or the blood. Since pneumococci can colonize the upper airway, the recovery of pneumococci only from the nose or throat of patients with otitis media, pneumonia, septicemia, meningitis, or septic arthritis may not be related to the cause of these syndromes unless pneumococci are also isolated from blood, pleural fluid, lung tissue, cerebrospinal fluid, or joint fluid.

Treatment

The treatment of pneumococcal disease has become complex. Penicillin has historically been the drug of choice for the treatment of pneumococcal disease. The incidence of intermediate (minimum inhibitory concentration 0.1 – 1.0 µg/ml) and complete (minimum inhibitory concentration ≥ 2.0 µg/ml) penicillin resistance, and multi-drug resistance have increased during the past ten years throughout the world. Intermediate resistance varies among geographic areas and hospitals, but can be as high as 40% in some areas of the United States. All pneumococcal isolates from patients with invasive pneumococcal disease should be tested for susceptibility to antibiotics.

Empiric treatment of pneumococcal disease should be based on knowledge of antibiotic susceptibility patterns in the community. Penicillin is the drug of choice for penicillin-susceptible strains. Penicillin-susceptible and intermediate resistant pneumococcal pneumonia can be treated with oral amoxicillin in outpatients. Parenteral ceftriaxone, cefotaxime, or ampicillin is indicated for more severe disease in hospitalized patients. Parenteral or oral quinolones or azithromycin can also be used to treat severe pneumococcal pneumonia in hospitalized patients. About 10% to 15% of pneumococcal strains are resistant to macrolides (erythromycin, clarithromycin, azithromycin), and 1% to 2% resistant to quinolones. Clindamycin is effective against a higher proportion of resistant pneumococci than are the macrolides. Vancomycin is uniformly effective against pneumococci and should be used for initial therapy if drug resistance is suspected.

Patients with severe allergic reaction to ß-lactam antibiotics should receive intravenous vancomyin, a quinolone antibiotic, or a macrolide antibiotic to treat pneumococcal pneumonia.

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Pneumococcal Disease

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Vancomycin should be included in the treatment regimen for life-threatening pneumococcal infections (e.g. meningitis, endocarditis, sepsis) until it is documented that the pneumococcal strain is susceptible to penicillin, ceftriaxone, or cefotaxime. Life threatening pneumococcal infections should be managed with the participation of appropriate consultants including an expert in infectious diseases to advise on the choice and specific details of antibiotic therapy.

Vaccination: The best protection

The high incidence of pneumococcal disease, its severity, and the rise of antimicrobial resistance are three compelling reasons why pneumococcal vaccination is important.

There are currently ***two*** vaccines that protect against pneumococcal disease:

- A 23-valent pneumococcal **polysaccharide** vaccine (PPV 23), licensed in the U.S. in 1983 for use in adults and children ages 2 years and older.
- A pneumococcal **conjugate** vaccine, licensed in the U.S. on February 17, 2000, for infants and children, ages 6 weeks through 59 months.

23-Valent Polysaccharide Vaccine

The 23-valent polysaccharide vaccine contains 23 serotypes of *Streptococcus pneumoniae* that cause 88% of bacteremic pneumococcal disease. In addition, cross-reactivity occurs for several capsular types which account for an additional 8% of bacteremic disease.

Overall, the vaccine is 60 to 70% effective in preventing invasive disease. The vaccine appears to be less effective in preventing non-bacteremic pneumococcal pneumonia. The vaccine also may be less effective in preventing pneumococcal infection in some groups, particularly those with significant underlying illness. Although the vaccine may not be as effective in some persons, especially those who do not have normal resistance to infections, it is still recommended for such persons because they are at high risk of developing severe disease.

More than 80% of healthy adults who receive pneumococcal polysaccharide vaccine develop antibodies against the serotypes contained in the vaccine, usually within 2 to 3 weeks after vaccination. Older adults, and persons with some chronic illnesses or immunodeficiency may not respond as well, if at all. In children under 2 years of age, antibody response to most serotypes in the pneumococcal polysaccharide vaccine is generally poor.

Persons who should receive the **pneumococcal 23-valent *polysaccharide* vaccine** include:

- adults 65 years of age and older,
- adults with normal immune systems who have chronic illnesses (including cardiovascular disease, pulmonary disease, diabetes mellitus, alcoholism, cirrhosis, or CSF leaks),
- immunocompromised adults (including splenic absence or dysfunction, Hodgkins's disease, lymphoma, multiple myeloma, chronic renal failure, nephrotic syndrome, organ transplantation, asymptomatic or symptomatic HIV),
- children 2 years of age and older at high risk for serious pneumococcal disease or its complications (functional or anatomic asplenia, sickle cell disease, nephrotic syndrome, CSF leaks, immunosuppression, asymptomatic or symptomatic HIV), and
- persons living in special environments or settings with increased risk, such as certain Native American populations.

The pneumococcal vaccine can be given at any time during the year and may be given in combination with influenza vaccine.

Revaccination

Routine revaccination of immunocompetent persons previously vaccinated with PPV23 is not recommended. Revaccination is recommended for persons 2 years of age and older who are at highest risk for serious pneumococcal infection, and for those who are likely to have a rapid decline in pneumococcal antibody levels. Only one PPV 23 revaccination dose is recommended for high-risk persons.

Vaccine indications for those 2-64 years of age includes those with:

- chronic cardiovascular disease,
- chronic pulmonary disease,
- diabetes mellitus,
- alcoholism,
- CSF leaks,
- Alaska natives and certain American Indian populations.

Revaccination is also recommended for immunocompromised patients, including those with:

- HIV infection,
- leukemia,
- lymphoma,
- Hodgkin's disease,
- Multiple Myeloma,
- generalized malignancies,
- chronic renal failure or nephrotic syndrome,
- those receiving immunosuppressive therapy, and
- patients who have received organ or bone marrow transplants.

Side Effects

The most common adverse reactions following the pneumococcal polysaccharide vaccine are local reactions – pain, swelling, or erythema at the injection site. Local reactions are reported more frequently following a second dose of polysaccharide vaccine than following the first dose.

Moderate systemic reactions such as fever or myalgias are uncommon and more severe systemic adverse events are rare.

Additional information

Additional information about pneumococcal diseases and a copy of the Recommendations of the Advisory Committee on Immunization Practices (ACIP): Prevention of Pneumococcal Disease April 4, 1997, Vol. 46, No. RR-8 can be downloaded from the Centers for Disease Control and Prevention's web site at: *http://www.cdc.gov/nip/publications/ACIP-list.htm*

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Hepatitis C in Hawaii

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tive, the patient should be evaluated for progressive fibrosis. Some experts are now recommending serial liver biopsies in selected patients. There is spontaneous resolution of infection in only 15% of cases.

In high-risk populations the sensitivity of the ELISA-3 is greater than 90%. As a positive patient is likely to be a candidate for treatment, the qualitative PCR will confirm active infection and the genotype identified will indicate the needed duration of treatment. Patients with genotype 1 require treatment twice as long as for patients with the other 5 genotypes. A quantitative PCR test also will confirm viremia and indicate treatment prognosis, but it is not as sensitive as the qualitative test.

Case Finding

Aggressive case finding to identify high-risk patients for early intervention and promotion of support groups for these patients may reduce treatment cost in the long run. A managed care organization in Minnesota has taken such steps. Physician-sponsored patient support groups and group education can be more effective and less expensive than one-on-one patient education in the physician's office. These physician-sponsored groups provide patients an important resource to validate information they often find on the internet, which may at times be inaccurate and misleading. These groups also help improve compliance with a difficult treatment course, and help treating physicians to identify early adverse reactions. Support groups can also assist patients in resolving the guilt and anger associated with this disease and ensure they have taken steps to discontinue drug use over the long term.

Prevention

To prevent HCVinfection, efforts need to be directed primarily at discouraging drug abuse. Currently at least 60% of HCV is transmitted through IV drugs. Our experience shows that most disease transmission occurs within a few months of IV drug use. On the other hand, the risk of sexual transmission of HCV is not clear. Patients who visit sexually transmitted disease clinics have a higher prevalence of HCV than do the general population, but at a lower rate than that of IV drug users. Multiple sex partners also appears to be a risk factor. On the other hand, the risk of transmission of HCV in monogamous, discordant heterosexual couples is reported as low or non-existent. Educational programs may be best directed to preadolescents to ensure interventions occur before there is significant pressure to participate in high-risk behavior.

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Pneumococcal Disease

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If your practice or organization would like a 4-color poster focusing on pneumonia prevention or would like to participate in the Pneumonia Prevention Campaign please contact Judy Strait-Jones, Hawai`i Immunization Program, at (808) 586-8321 in Honolulu.

Medicare Part B reimburses physicians for pneumococcal vaccinations.

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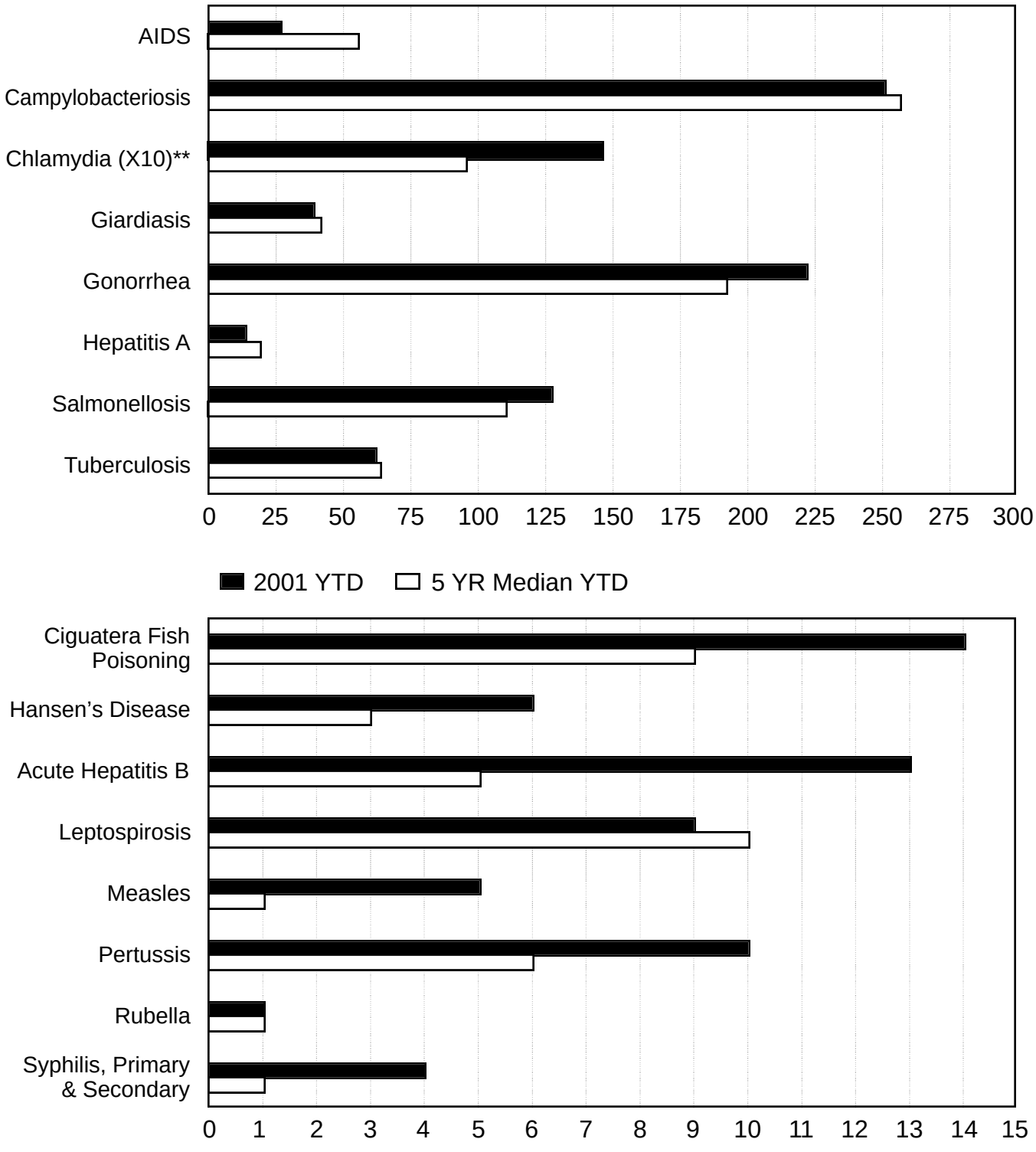
Submitted by Judy Strait-Jones, M.P.H., M.Ed., Public Health Educator, Hawai`i Immunization Program, Epidemiology Branch, and Philip P. Bruno, D.O., F.A.C.P., Chief, Communicable Disease Division.

Submitted by Thomas Cashman, M.D., M.S.P.H., M.A., Physician, and Joe L. Elm, M.S., Epidemiological Specialist, Hepatitis Control Section, Epidemiology Branch.

Communicable Disease Sur veillance

Selected Diseases by Date of Report*
Hawai‘i, 2001 Year-to-date Through May



* These data do not agree with tables using date of onset or date of diagnosis.
**The number of cases graphed represent 10% of the total number reported.

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Department of Health
Epidemiology Branch
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Philip P. Bruno, D.O., F.A.C.P., Chief, Communicable Disease Division
Paul V. Effler, M.D., M.P.H., State Epidemiologist

May/June 2001

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